Dealer Installation
and Start-Up Instructions

500 Series Thermostat
Featuring Serial Communication
(-)HC-TST501CMMS

Manual 37-6943A
0830

Dealer Installation
and Start-Up Instructions

Comfort Control² System™

ENERGY STAR

500 Series Thermostat

Featuring Serial Communication

(-)HC-TST501CMMS

FAILURE TO READ AND FOLLOW ALL INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR OPERATING THIS CONTROL AND SYSTEM COULD CAUSE PERSONAL INJURY AND/OR PROPERTY DAMAGE.

Introduction to Thermostat and Communicating System

The system consists of a premium indoor furnace or air handler, an outdoor AC condensing unit or heat pump and touchscreen thermostat that is the HVAC command center. All these devices are linked together and communicate using ClimateTalk language protocol. The benefits of ClimateTalk are auto-configuration of the system, the ability to share information throughout the system for enhanced diagnostics and control, and straightforward wiring since communications requires attaching only four wires. This ensures simple, reliable operation and an accurate installation.

⚠ WARNING

Thermostat installation and all components of the control system shall conform to Class II circuits per the NEC code.

⚠ WARNING

To prevent electrical shock and/or equipment damage, disconnect electric power to system at main fuse or circuit breaker box until installation is complete.

ATTENTION: MERCURY NOTICE

This product does not contain mercury. However, this product may replace a product that contains mercury.

Mercury and products containing mercury must not be discarded in household trash. Do not touch any spilled mercury. Wearing non-absorbent gloves clean up any spilled mercury and place in a sealed container. For proper disposal of a product containing mercury or a sealed container of spilled mercury, place it in a suitable shipping container.

Refer to **www.white-rodgers.com** for location to send the product containing mercury.

System Fault Codes *(Cont.)*

Display code	Diagnostic Description
81	Return air sensor out of range
82	Supply air sensor out of range
83	Coil Temperature Sensor Fault
84	Outdoor Ambient Temperature Sensor Fault
93	Board Failure
P	Compressor Protector Fault
d1	No Shared Data
d3	Insufficient Indoor CFM
d4	Memory Card Invalid
d5	Card Hardware Conflict
d6	Blower Horsepower Conflict
d7	Blower Manufacturer Conflict
d8	Old Shared Data

Please refer to equipment instructions for additional fault information.

System Fault Codes

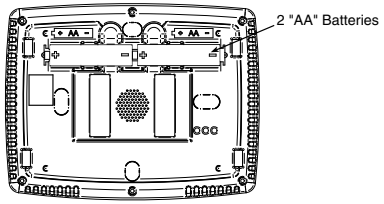
Display code	Diagnostic Description
1	Long Run Time
2	System Pressure Trip
3	Short Cycling
4 (L4)	Locked Rotor
5 (L5)	Open Circuit
6 (L6)	Open Start Circuit
7 (L7)	Open Run Circuit
9	Low Secondary Voltage
11	Failed ignition
12	Low flame sense current
13	Flame lost after established
14	Flame present with gas valve off
21 (L21)	Low Pressure Switch Trip
22	Main limit switch open.
23	Auxiliary limit switch open
26	Line Neutral Reversed
27	Check Line Voltage
28	High Line Voltage
29 (L29)	High Pressure Switch Trip
30	Fuse Open
33	MRLC Open
44	Low pressure switch closed, inducer off
45	Low pressure switch open, inducer on high speed
46	Low pressure switch open, inducer on low speed
55	High pressure switch closed, inducer off
57	High pressure switch open, inducer on high speed
60	Blower Fault Run
61	Blower Fault No Run
66	RPM out of range (over 1200 RPM)
68	No Blower Communication
77	Servo circuit open
78	Servo control fault
79	No Gas Valve Feedback
80	Low Airflow

Table of Contents

This document provides information for installation of the touchscreen thermostat only. Installation instructions of the furnace or air handler and outdoor AC condensing unit or heat pump are provided with each of these devices.

This thermostat is designed exclusively for this Comfort Control² System™ equipment ONLY.

Battery Location



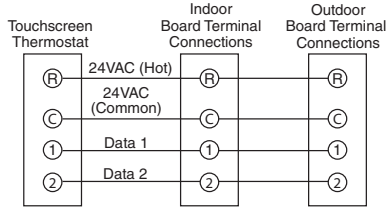
2 “AA” alkaline batteries are included in the thermostat to keep time during a power outage. They are also required for armchair programming.

If **“LOW BATTERY”** is displayed in the scrolling area, the batteries are low and should be replaced with fresh batteries. For best results use premium brand alkaline batteries, such as Duracell® or Energizer®.

To replace batteries, set thermostat **SYSTEM** touch key to Off, remove thermostat from wall by grasping the top and bottom of the thermostat and pulling straight away from the wall. The base will remain on the wall. Install the batteries in the rear along the top of the thermostat. Reposition the thermostat over the base plate and gently snap into place.

Wiring Requirements

Each communicating device in the system has a four wire connection labelled (R, C, 1, 2). Each R, C, 1, and 2 terminals must be wired consistently.



Air Conditioner User Menus *(Cont.)*

Fault History (FAULT HIST)		
Fault Code	Fault Occurred	Comments
XXXXXXXXXXXXXX	Days XX	Displays up to 6 faults; Days (XX) indicates how many days ago the fault occurred
Clear Faults	No, Yes	

Unit Info		
Parameter	Indications	Comments
Model Number	XXXX-XXXXXXXXXXXXXXX	Unit Model Number
Serial Number	XXXXXXXXXXXXXXXXX	Unit Serial Number (not available if control is replaced)
Software Vers	XXXXXX	Control Software Version

Cool Setup		
Parameters	Options	Comments
AC Profile	A, B, C, D	Selectable Airflow Profiles (See AC Installer Guide)
Cool Air Adj %	-10, 0, 10	Selectable Cooling Airflow Adjustments
On Demand Dehum	On, Off	Select Blower Operation based on humidity
Reset All Dflts	No, Yes	Resets the AC to the Factory Default configuration by selecting Yes
Outdoor Temp Sens	On, Off	If Outdoor Ambient Temperature Sensor is Field installed, turn On. Factory Default is Off

Air Conditioner User Menus

Status		
Parameter	Option	Comments
Compressor	Off, On	Compressor Status
Mode	AC, AC1, AC2, Time Delay, Off	System Mode of Operation
Comp Hi Pres SW	Closed, Open	AC High Pressure Switch Status
Comp Lo Pres SW	Closed, Open	AC Low Pressure Switch Status
Outdr Temp Sens (if enabled)	XXXF, FLT	Outdoor Ambient Temperature Display (if installed and enabled in setup) This option will not appear unless the sensor is enabled

2 Week History (2 WK HIST)		
Parameter	Indications	Comments
2wk Y1 Hrs	XXX	2 Week First Stage Cooling Hours of Operation
2wk Y1 Cycles	XXXX	2 Week First Stage Cooling Cycles
2wk Y2 Hrs	XXX	2 Week Second Stage Cooling Hours Operation
2wk Y2 Cycles	XXXX	2 Week Second Stage Cooling Cycles

Life History (LIFE HIST)		
Parameter	Indications	Comments
Total Days Pwrd	XXXX	Total number of days control has been powered
Y1 Hrs	XXXXXX	First Stage Cooling Hours of Operation
Y1 Cycles	XXXXXX	First Stage Cooling Cycles
Y2 Hrs	XXXXXX	Second Stage Cooling Hours of Operation
Y2 Cycles	XXXXXX	Second Stage Cooling Cycles

Quick Install Steps

- Determine location of thermostat installation.
- Mount thermostat base to wall.
- Connect wires to thermostat base.
- Remove battery tag to provide battery power to the thermostat.
- Attach thermostat to base.
- Turn on power to system. Allow approximately 1 minute for the system to configure.
- Set the time
- Select thermostat operating options in the Thermostat Options Configuration Menu.
- Perform thermostat/system operation checkout.
- Program thermostat or accept factory programming.
- Touch Run Schedule.

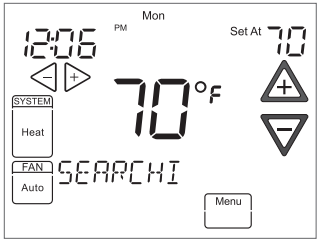
Installing thermostat

- Pull the thermostat body off the thermostat base. Forcing or prying thermostat will cause damage to the unit.
- Place base at installation location and mark mounting hole locations on wall using base as a template.
- Move base out of the way. Drill mounting holes.
- Attach base snugly to wall using two mounting screws. Levelling is for appearance only and will not affect thermostat operation.
- Connect wires to terminal block on base.
- Push excess wire into wall and plug hole with a fire resistant material (such as fiberglass insulation) to prevent drafts from affecting thermostat operation.
- Remove battery tag to provide battery power to thermostat.
- Carefully line the thermostat up with the base and snap into place.

Power Up

Turn on AC power to the system. The thermostat will automatically identify the communicating components installed.

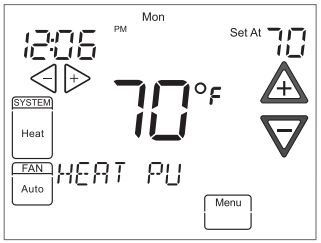
Messages at Thermostat



During power up, the thermostat will scroll the word **"SEARCHING"** in the message area, indicating that the system is looking for components (Air Handler, Furnace, Heat Pump, Air Conditioner) on the Climate Talk network. Once the components are identified the message display will indicate the components found. Confirmation will be given in the message area that the equipment has been found with the message **(equipment) FOUND.**

Note: If the thermostat display continuously shows **"SEARCHING"**, check the wiring to the thermostat.

Communications Systems



The thermostat will recognize the system devices that are connected and the capacities to set the system up to the operating settings. The system has additional flexibility which allows for the customization of certain parameters.

Heat Pump User Menus *(Cont.)*

Cool Setup		
Parameter	Options	Comments
AC Profile	A, B, C, D	Selectable Airflow Profiles (see Heat Pump Installer Guide)
Cool Air Adj %	-10, 0, 10	Selectable Cooling Airflow Adjustments
On Demand Dehum	On, Off	Select Blower Operation on based on humidity
Reset All Dflts	No, Yes	Resets the Heat Pump to the Factory Default Configuration by selecting Yes

Heat Setup		
Parameter	Options	Comments
HP Profile	A, B, C, D,	Selectable Airflow Profiles (See Heat Pump Installer Guide)
Heat Air Adj %	-10, 0, 10	Selectable Heat Pump Airflow Adjustments
Dfrost Cmpr Dly	0, 5,	Selectable Compressor Delay during defrost
Reset All Dflts	No, Yes	Resets the Heat Pump to the Factory Default Configuration by selecting Yes
HP Staging (Multi-Stage Units Only)	On, Off	For Multi-Stage Heat Pumps Factory Default is On. This allows Low/High stages of capacities. To only allow High capacity in Heat Pump Mode select Off

Heat Pump User Menus *(Cont.)*

Life History (LIFE HIST)		
Parameter	Indications	Comments
Total Days Pwrd	XXXX	Total Number of Days Control has been Powered
Y1 Hrs	XXXXXX	First Stage Cooling Hours of Operation
Y1 Cycles	XXXXXX	First Stage Cooling Cycles
Y2 Hrs	XXXXXX	Second Stage Cooling Hours of Operation
Y2 Cycles	XXXXXX	Second Stage Cooling Cycles
Lo HT Hrs	XXXXXX	First Stage Heat Pump Hours of Operation
Lo HT Cycles	XXXXXX	First Stage Heat Pump Cycles
Hi HT Hrs	XXXXXX	Second Stage Heat Pump Hours of Operation
Hi HT Cycles	XXXXXX	Second Stage Heat Pump Cycles
Defrost Cycles	XXXXXX	Total Defrost Cycles

Fault History (FAULT HIST)		
Fault Code	Fault Occurred	Comments
XXXXXXXXXXXXXX	Days XX	Displays up to 6 faults; Days (XX) indicates how many days ago the fault occurred
Clear Faults	No, Yes	

Unit Info		
Parameter	Indications	Comments
Model Number	XXXX-XXXXXXXXXXXXXXX	Unit Model Number
Serial Number	XXXXXXXXXXXXXXXXX	Unit Serial Number (not available if control is replaced)
Software Vers	XXXXXX	Control Software Version

Check System Operation

Fan Operation

- Turn power on to the system.
- Press **Run Schedule**.
- Press FAN until **FAN On** is displayed. The fan should begin to operate.
- Press FAN until **FAN Auto** is displayed. The fan should stop operating.

Heating System

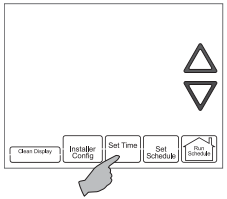
- Press **Run Schedule**.
- Press **SYSTEM** key until **Heat** is displayed.
- Press ⚠ to adjust thermostat setting above room temperature. The heating system should begin to operate.
- Press ▽ to adjust thermostat setting below room temperature. The heating system should stop operating.

Cooling System

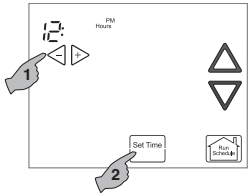
- Press **SYSTEM** key until **Cool** is displayed.
- Press ▽ to adjust thermostat setting below room temperature. The cooling system should begin to operate.
- Press ⚠ to adjust thermostat setting above room temperature. The cooling system should stop operating.

Set Current Time and Day

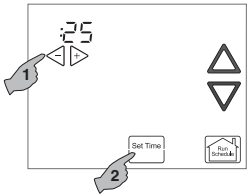
On Home Screen Display, touch the **Menu** key to display additional key choices.



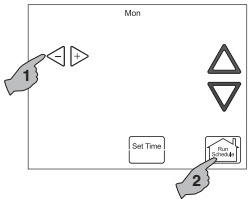
Touch **Set Time** once to display hour and AM or PM designation in clock display.



Touch either the ◁ or ▷ key until you reach the correct hour and AM or PM designation. Then touch **Set Time** again to display minutes only in clock display.



Touch and hold either the ◁ or ▷ keys until you reach the correct minutes. Then touch **Set Time** once again to display the day of the week.



Touch either the ◁ or ▷ key until you reach the correct day.

Touch **Run Schedule** to save the Time and Day settings and return to the Home Screen Display.

Heat Pump User Menus

Status		
Parameter	Indications	Comments
Compressor	Off, On	Compressor Status
Mode	AC, AC1, AC2, HP, HP1, HP2, Defrost, Time Delay, Off	System Mode of Operation
Comp Hi Pres SW	Closed, Open	Heat Pump High Pressure Switch Status
Comp Lo Pres SW	Closed, Open	Heat Pump Low Pressure Switch Status
Outdr Temp Sens	FLT, XXXF	Outdoor Ambient Temperature
Coil Temp	FLT, XXXF	Outdoor Coil Temperature

2 Week History (2 WK HIST)		
Parameter	Indications	Comments
2wk Y1 Hrs	XXX	2 Week First Stage Cooling Hours of Operation
2wk Y1 Cycles	XXXX	2 Week First Stage Cooling Cycles
2wk Y2 Hrs	XXX	2 Week Second Stage Cooling Hours of Operation
2wk Y2 Cycles	XXXX	2 Week Second Stage Cooling Cycles
2wk Lo HT Hrs	XXX	2 Week First Stage Heat Pump Hours of Operation
2wk Lo HT Cycls	XXXX	2 Week First Stage Heat Pump Cycles
2wk Hi HT Hrs	XXX	2 Week Second Stage Heat Pump Hours of Operation
2wk Hi HT Cycls	XXXX	2 Week Second Stage Heat Pump Cycles
2wk Dfrst Cycls	XXXX	2 Week Heat Pump Defrost Cycles

Air Handler User Menus *(Cont.)*

Fault History (FAULT HIST)		
Fault Code	Fault Occurred	Comments
XXXXXXXXXXXXXX	Days XX	Displays up to 6 Faults; Days (XX) indicates how many days ago the fault occurred
Clear Faults	No, Yes	

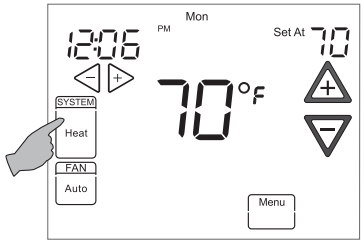
Unit Info		
Parameter	Indications	Comments
Model Number	XXXX-XXXXXXXXXXXXXXX	Unit Model Number
Serial Number	XXXXXXXXXXXXXXXXX	Unit Serial Number (not available if control is replaced)
Software Vers	XXXXXX	Control Software Version

Setup		
Parameter	Options	Comments
Return Air Sens	Off, On	If Return Air Sensor is field installed, turn On. Factory Default is Off
Supply Air Sens	Off, On	If Supply Air Sensor is field installed, turn On. Factory Default is Off
Reset All Dflts	No, Yes	Resets the Air Handler to the Factory Default Configuration by selecting Yes

Dipswitch*		
Dip Switch	Indications	Comments
Cool Airflow	XXXXCFM	View Airflow Dipswitches
HT Pump Airflow	XXXXCFM	View Heat Pump Airflow Dipswitch Settings
Cool Air Adj	-10%, 0%, 10%	View Airflow Trim Settings
On-Demand Dehum	On, Off	Activate Dehumidification Feature

*** Dipswitch status is not required when the system is set up for 4-wire communications. It is only displayed when a conventional 24V thermostat input is active.**

Choose the System Setting (Cool, Off, Heat, Em, Auto)



Touch the **SYSTEM** key to select:

Cool: Thermostat controls only the cooling system.

Off: Heating and Cooling systems are off.

Heat: Thermostat controls only the heating system.

Em: Thermostat controls emergency heating only.

Auto: Auto Changeover is used where both heating and cooling may be required during the same day. Auto allows the thermostat to automatically select heating or cooling depending on the indoor temperature and the selected heat and cool setpoints. This thermostat will not allow you to program a conflict between Heating and Cooling setpoints. For setting Auto mode see page 17.

Energy Saving Factory Pre-Program

This touchscreen thermostat is programmed with the energy saving settings shown in the table below for all days of the week. If this program suits your customer's needs, simply touch the **Run Schedule** key.

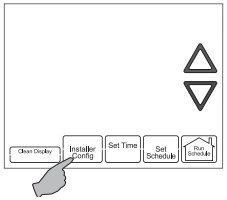
Factory Pre-Programmed heating and cooling schedule for all days of the week

	Wake Up (Morning)		Leave For Work (Day)		Return Home (Evening)		Go To Bed (Night)	
Heating Program	6:00 AM	70°F	8:00 AM	62°F	5:00 PM	70°F	10:00 PM	62°F
Cooling Program	6:00 AM	75°F	8:00 AM	83°F	5:00 PM	75°F	10:00 PM	78°F

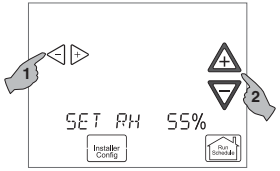
Instructions for changing the programming are in the Homeowner User Guide.

Set Up Thermostat Options

The Thermostat has options that can be selected and adjusted. These options are in the Thermostat Options Configuration Menu. On the Home Screen Display, touch the Menu key to display additional key choices.



Touch and hold the **Installer Config** key for 3 seconds. This displays the first menu item as shown in the next step. Touch ◁ or ▷ to change a menu option. Touch △ to advance to the next menu item or ▽ to return to the previous menu item. Touch **Run Schedule** at any time to exit the menu and return to Home Screen Display.



Select On Demand Dehumidification (ODD) setting. Default is OFF. It can be set in the range of 40 to 94%. Above 94% is the OFF setting. Ideally, the indoor humidity should be set in the range of 40 to 60%.

When On Demand Dehumidification is selected, the thermostat will indicate the current humidity on the home screen. The display will show **RH** with the humidity %. If the current humidity is above the selected setting, the thermostat will send an On Demand Dehumidification request.

On Demand Dehumidification improves the comfort level in your home by reducing the humidity level. This is accomplished by slowing down the system fan speed and lengthening the run time. The humidity setting may not be reached before the call for cool has been satisfied as the system priority is to maintain the temperature in the home.

Air Handler User Menus

Status		
Parameter	Indications	Comments
Auxiliary Heat	On, Off	Auxiliary Heat Status
Blower CFM	CFMXXXX	Air Handler Blower CFM
Motor Mfgr	Rgblt, Emerson	Blower Motor Manufacturer
Motor RPM	RPMXXXX	Blower Motor RPM
Maximum CFM	CFMXXXX	Maximum CFM of the Air Handler
Temp Rise	NA, XXXF, FLT	Difference Between the Supply and Return Air Temperature (NA if either sensor is disabled)
Return Temp	NA (if disabled), XXXF, FLT	Displays Return Air Temperature (if installed and enabled in Setup)
Supply Temp	NA (if disabled), XXXF, FLT	Displays Supply Air Temperature (if installed and enabled in Setup)

2 Week History (2 WK HIST)		
Parameter	Indications	Comments
2wk AuxHT Hrs	XXX	2 Week Auxiliary Heat Hours of Operation
2wk AuxHT Cycls	XXXX	2 Week Auxiliary Heat Cycles
2wk G Hrs	XXX	2 Week Blower Hours of Operation
2wk G Cycles	XXXX	2 Week Blower Cycles

Life History (LIFE HIST)		
Parameter	Indications	Comments
Total Days Pwrd	XXXX	Total number of days control has been powered
Aux HT Hrs	XXXXXX	Auxiliary Heat Hours of Operation
Aux HT Cycles	XXXXXX	Auxiliary Heat Cycles
G Hrs	XXXXXX	Continuous Fan Hours of Operation
G Cycles	XXXXXX	Continuous Fan Cycles

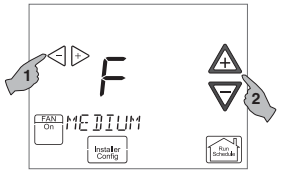
Furnace User Menus *(Cont.)*

Unit Info		
Parameter	Indications	Comments
Model Number	XXXX-XXXXXXXXXXXXXXX	Unit Model Number
Serial Number	XXXXXXXXXXXXXXXXX	Unit Serial Number (Not available if control is replaced)
Software Vers	XXXXXX	Control Software Version

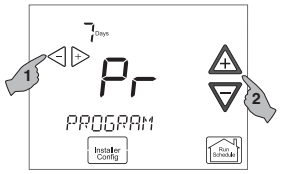
Setup		
Parameter	Options	Comments
Heat Rise Adjust	55F, 65F	Change airflow to adjust heat temperature rise
Min Heat Adj %	-15, -7, 0, 7, 15	Selectable Airflow Adjustments at 40% Firing Rate
Max Heat Adj %	-15, -7, 0, 7, 15	Selectable Airflow Adjustments at 100% Firing Rate
Supply Air Sens	On, Off	Factory default is On, if Sensor is not installed turn Off
Reset All Dflts	No, Yes	Resets the Furnace to the Factory Default Configuration by selecting Yes

Dipswitch*		
Dip Switch	Indications	Comments
Cool Airflow	XXXXCFM	Airflow Dipswitch Settings
Heat Rise	Nom, Nom+10	Heat Rise Airflow Settings
Hi Heat Adj	-15%, -7%, 0%, 7%, 15%	High Heat Airflow Settings
Lo Heat Adj	-15%, -7%, 0%, 7%, 15%	Low Heat Airflow Settings
Fan Spd Select	Lo, Hi	Fan Speed Settings
AC-HP Adj	-10%, 0%, 10%	Heat Pump AC Airflow Settings
On-Demand Dehum	On, Off	Dehumidification Settings
Test Mode	Off, 40% (70%), 100%	Test Mode Settings
AC HP Stg Mult	NA, 50%, 75%	Heat Pump AC Stage Multiplier

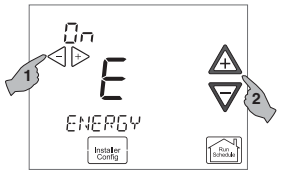
*** Dipswitch status is not required when the system is set up for 4-wire communications. It is only displayed when a conventional 24V thermostat input is active.**



Select continuous FAN speed.
Default is Medium. It can be set to High, Medium or Low. In High, the fan will run at the highest speed when **FAN** key is selected to On. In high, the fan speed will be at high speed, in medium the fan speed will be approximately 60% of high, and in low the fan speed will be approximately 30% of high.

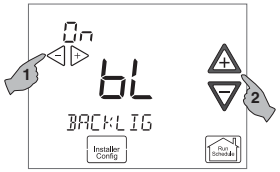


Select program days per week.
Scrolling message will show **"PROGRAM TYPE"**. Default is 7 Days to indicate individual day programming. It can be changed to 0 Days to indicate no programs will be run. When set for 7 Days, the thermostat will follow the factory program or the program that you entered.

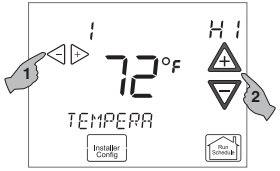


Select Energy Management Recovery.
Scrolling Message will show "**ENERGY MANAGEMENT RECOVERY"**. (Will not appear if Program days per week is set to 0 Days.) When selected On, the thermostat will begin heating or cooling early to have the temperature reach the program setpoint at the program period start time.

Example: The heating program is 65° at night and 70° at 7 AM for the Morning period. The building temperature is 65°, a difference of 5°. Allowing 5 minutes per °F rise, the thermostat will begin the system at 6:35 AM to reach 70° at 7 AM.



Select continuous backlight. Scrolling message will show "**BACKLIGHT**". When bL is selected On the backlight will be on continuously. Selecting bL OFF will allow the backlight to turn on momentarily when any key is touched. If system power is off and thermostat is operating on battery only, and bL is On, bL will turn the backlight on momentarily when a key is touched.



Select temperature offset. Scrolling message will show "**TEMPERATURE ADJUSTMENT**". Your thermostat was accurately calibrated at the factory, however this option allows you to change the display temperature to match your previous thermostat if you prefer. Default is 0° with current temperature. Adjustment can be made from 5° Lo to 5° HI to change the displayed temperature.

Touch **Run Schedule** at any time to exit the Menu and return to Home Screen Display.

Furnace User Menus *(Cont.)*

2 Week History (2 WK HIST)		
Parameter	Indications	Comments
2wk Lo HT Hrs	XXX	2 Weeks Low Heat Hours of Operation
2wk Lo HT Cycls	XXXX	2 Weeks Low Heat Cycles
2wk Hi HT Hrs	XXX	2 Weeks High Heat Hours of Operation
2wk Hi HT Cycls	XXXX	2 Weeks High Heat Cycles
2wk Y1 Hrs	XXX	2 Week First Stage Cooling/Heat Pump Hours of Operation
2wk Y1 Cycles	XXXX	2 Week First Stage Cooling/Heat Pump Cycles
2wk Y2 Hrs	XXX	2 Week Second Stage Cooling/Heat Pump Hours of Operation
2wk Y2 Cycles	XXXX	2 Week Second Stage Cooling/Heat Pump Cycles
2wk G Hrs	XXX	2 Week Indoor Blower Hours of Operation
2wk G Cycles	XXXX	2 Week Indoor Blower Cycles

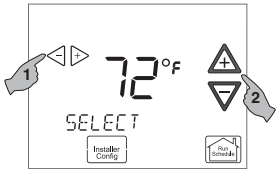
Life History (LIFE HIST)		
Parameter	Indications	Comments
Total Days Pwrd	XXXX	Total number of days control has been powered
Lo HT Hrs	XXXXXX	Low Heat Hours of Operation
Lo HT Cycles	XXXXXX	Low Heat Cycles
Hi HT Hrs	XXXXXX	High Heat Hours of Operation
Hi HT Cycles	XXXXXX	High Heat Cycles
Y1 Hrs	XXXXXX	First Stage Cooling/Heat Pump Hours of Operation
Y1 Cycles	XXXXXX	First Stage Cooling/Heat Pump Cycles
Y2 Hrs	XXXXXX	Second Stage Cooling/Heat Pump Hours of Operation
Y2 Cycles	XXXXXX	Second Stage Cooling/Heat Pump Cycles
G Hrs	XXXXXX	Indoor Blower Hours of Operation

Fault History (FAULT HIST)		
Fault Code	Fault Occurred	Comments
XXXXXXXXXXXXXXX	Days XX	Displays up to 6 Faults; Days (XX) indicates how many days ago the fault occurred
Clear Faults	No, Yes	

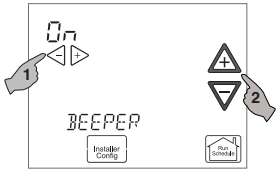
Furnace User Menus

Status I		
Parameter	Indications	Comments
Main Limit	Closed, Open	Main Limit Control Status
MRLC Input	Closed, Open	Main Reset Limit Control Status
HALC Input	Closed, Open	Heat Assist Limit Control Status
IDM Output	Off, Lo, Hi	Inducer Output Status
Furn Lo Pr Sw	Closed, Open	Furnace Low Pressure Switch Status
Furn Hi Pr Sw	Closed, Open	Furnace High Pressure Switch Status
Gas VLV Prcnt %	XXX%, Off	Mod Gas Valve % Open
Gas VLV Relay	Lo, Hi, On, Off	Gas Valve Control Output Status
Flame	Off, Marginal, Good, Unexpected	Status of Flame Sensor
Blower CFM	CFM XXXX	Furnace Blower CFM

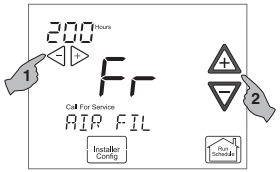
Status 2		
Parameter	Indications	Comments
Mode	Mod Heat, Lo Heat, Hi Heat, AC1, AC2, Fan Only, Off, HP1, HP2	Indicates Operating Mode of System
Motor Mfgr	Regblt, Emerson	Blower Motor Manufacturer
Motor RPM	RPM	Blower Motor RPM
Maximum CFM	CFM XXXX	Maximum CFM Blower Provides
Blower CFM	CFM XXXX	Displays Current Operating CFM
Temp Rise	NA, XXXF	Difference between the Supply and Return Air Temperature
Return Temp	XXXF, FLT	Displays Return Air Temp (if installed)
Supply Temp	NA, (If disabled), XXXF, FLT	Displays Supply Air Temp (if installed and enabled in setup)
HUM Output	On, Off	Humidifier Output Relay Status
EAC Output	On, Off	Electronic Air Cleaner Output Relay Status



Select temperature display as Fahrenheit or Celsius. Scrolling message will show **"SELECT TEMPERATURE DISPLAY"**. This option selects the temperature display as °F or °C.

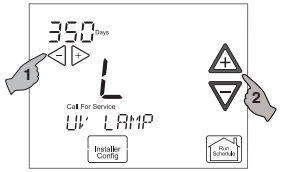


Select beeper (audio prompt) Default is On for the beeper to indicate a touch key selection. It can be changed to OFF.



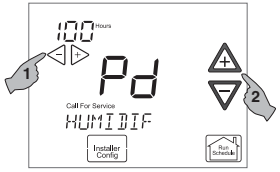
Select air filter maintenance reminder. Scrolling message will show **"AIR FILTER MAINTENANCE"**. Default is OFF. It can be changed to a setting from 25 to 1975 hours in increments of 25 hours to select the amount of time for the reminder. Consult your contractor for the hours and type of filter. Setting of 225 hours is typically 3 months of run time.

When the system has run for the selected length of time, the scrolling message area will show **"CHANGE FILTER"** to indicate maintenance is required.



Select UV lamp maintenance reminder. Scrolling message will show "**UV LAMP MAINTENANCE"**. Default is OFF. It can be changed to a setting from 25 to 1975 days in increments of 25 days to select the amount of time for the reminder. Setting of 350 days is an annual reminder.

Based on this setting, the scrolling message area will show "**CHANGE UV LAMP"** to indicate maintenance is required.



Select humidifier pad maintenance reminder. Scrolling message will show "**HUMIDIFIER PAD MAINTENANCE"**. Default is OFF. It can be changed to a setting from 25 to 1975 hours in increments of 25 hours to select the amount of time for the reminder. Setting of 100 hours is typically 6 months of run time.

Based on this setting, the scrolling message area will show "**CHANGE HUMIDIFIER PAD"** to indicate maintenance is required.

Thermostat User Menus

Status		
Parameter	Indications	Comments
Configuration	HP - Heat Pump DF - Dual Fuel GH - Gas Heat ES - Electric System AC - Air Conditioner FN - Fan EH - Electric Heat -- - Furnace and Air Conditioner	Indication in center of screen shows the configuration of the thermostat based on the equipment connected. The type of system with the number of stages will be displayed above the ◁ or ▷. Additional system types and stages can be viewed by pressing ◁ or ▷.

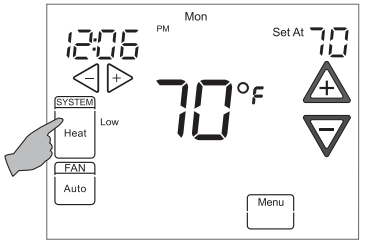
Setup		
Parameter	Options	Comments
Outdoor Temperature Display	bL, On, OFF	bL – (7 Days Programming only) Factory default is (bLink), alternates time display between time and outdoor temperature. On – (0 Days Programming default) The outdoor temperature is displayed continuously on the time display. OFF – Only Time is displayed.
Heat Pump Disable (HP)	OFF, 5° to 50°F	Available only for air handler with heat pump systems. Disables heat pump and turns on electric heat below the selected outdoor temperature.
Dual Fuel Disable (DF)	OFF, 5° to 50°F	Available only for furnace with heat pump systems (dual fuel systems). Switches from heat pump to fossil fuel equipment (furnace) below the selected temperature.
Air Handler Lockout Temperature (AH)	OFF, Heat Pump Disable setting to 95°F	Available only for air handler with heat pump systems. Disables electric heat above the selected outdoor temperature. OFF defaults to 50°F.
<equipment>_ Test	No, Yes	Steps the selected equipment through its sequential mode of operation.
Reset System	No, Yes	This will reset ALL of the communicating system components to their factory set values.

Each Equipment User Menu has submenus to divide the information into categories. Each equipment has a different set of submenus, with different parameters depending on the equipment. The submenus are showing similar information for each equipment. The submenus and the information they provide are:

• **Status**	Used to display or modify equipment settings
• **2 Week History (2 WK HIST)**	Displays information on the number of hours of unit/mode operation and the number of cycles the unit has operated in for the last two weeks.
• **Life History (LIFE HIST)**	Displays information on the lifetime number of hours of unit/mode operation and the number of cycles the unit has operated in.
• **Fault History (FAULT HIST)**	Displays information on the last six faults by code and description that occurred throughout the system and the number of days ago that the fault occurred.
• **Unit Info**	On new system installations displays the model number and serial number of the selected unit. If a control has been replaced the equipment will be recognized but will only show the unit model number.
• **Setup**	Used to display or modify equipment settings
• **Dipswitches**	Displays current setting of dipswitches on equipment.

"X" in the following tables indicate alpha or numeric character.

System Operation



Touch the **SYSTEM** key to select the thermostat operating mode desired. When the system is calling for first stage heat or cool, **"Low"** will display on the touchscreen. When second stage is required, the display will show **"High"**. The setpoint temperature can be changed by touching the ▲ or ▼ keys.

Auxiliary Heating

Heat Pump Disable

This feature is applicable only in the heat pump mode. When this feature is selected, the thermostat will switch to electric heat and shut off the compressor when the outside temperature falls below the HP balance point. In the Thermostat User Menu, use ◁ or ▷ to select the temperature which can be between 5 to 50°F.

Dual Fuel Disable

This feature is applicable only in the heat pump mode. When this feature is selected, the thermostat will switch to fossil fuel heat and shut off the compressor when the outside temperature falls below the DF balance point. In the Thermostat User Menu, use ◁ or ▷ to select the temperature which can be between 5 to 50°F.

Air Handler Lockout Temperature

This feature is applicable only in heat pump mode with electric auxiliary heat. When the outdoor temperature is above the Air Handler Lockout Temperature balance point, the auxiliary heat stage(s) will be inhibited so the thermostat setpoint will be maintained by only the heat pump. Factory default is OFF which disables the feature. The Lockout Setpoint cannot be set at or below the Heat Pump Disable (HP) balance point. In the Thermostat User Menu, use ◁ or ▷ to select the temperature which can be between the Heat Pump Disable setting value (HP) to 95°F.

Programmable Mode

If Program days per week is set for 7 (7 days) in the Thermostat Options Configuration Menu the thermostat can follow the program entered. Press the **Run Schedule** key. The thermostat will follow the program that you entered or the factory program.

Temporary Program Override

This feature will override the program temperature setting until the next program period begins. Touch ⚠ or ▽ keys to adjust the temperature. The display will indicate "**Temporary Hold At"** to the left of the setpoint temperature. To cancel the temporary setting before the next period begins, touch **Run Schedule** to return to the program.

Example: If you turn up the heat during the Morning program, it will remain at the new temperature until the time for the next period (Day program).

Permanent Temperature Hold

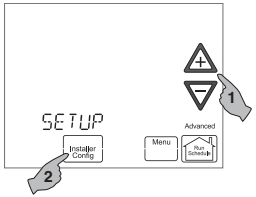
The Permanent Temperature Hold feature bypasses the program and allows you to adjust the temperature manually as needed. The temperature you set in HOLD will be maintained indefinitely. Touch **Run Schedule** to cancel HOLD and resume the programmed schedule.

Touch ⚠ or ▽keys to adjust the temperature. The **Hold** key will appear on the screen. Touch the **Hold** key to maintain the new setpoint temperature. "**Hold At"** will display to the left of the temperature setpoint. To cancel the permanent hold setting at any time and return to the program, touch **Run Schedule**.

Example: If you turn up the heat during the Morning program and touch the **Hold** key, it will remain at the new temperature until you touch **Run Schedule** or you manually adjust to another temperature.

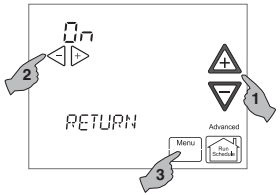
Non-Programmable Mode

If Program days per week is set for 0 Days (Non-programmable) in the Thermostat Options Configuration Menu, the thermostat will not follow any program periods. Time of day and day of week will not display. Touch the **SYSTEM** key to select Heat or Cool and use the ⚠ or ▽ buttons to adjust the temperature to your desired setting.



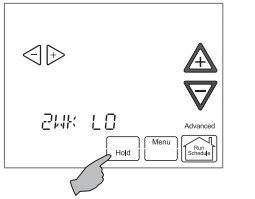
Touch ⚠ or ▽ to step through the list of equipment submenus. Each equipment may have different submenus.

When the equipment submenu you want is showing in the scrolling message area, touch **Installer Config**. The scrolling message area will show **"WORKING"**, then change to the first parameter on the equipment submenu. Settings for the parameter will also appear on the display.



Touch ⚠ or ▽ to step through the items of the equipment submenu and view settings.

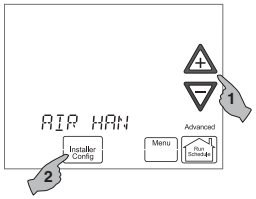
If a setting can be adjusted, the ◁ or ▷ keys will appear. Change the setting as required. Then touch ⚠ or ▽ to step to the next item. **"WORKING"** will appear and then the display will show **"DONE"** to indicate the change is accepted or **"FAIL"** to indicate the change was not made. The display will return to the fault status screen. Repeat the process.



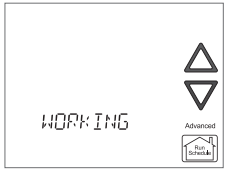
Some of the parameters being displayed on a submenu are long and switching between the name and the value. Touch the Hold key to momentarily stop the display from switching.

Equipment User Menus

The equipment found in the system will display in the scrolling message area.



Touch ⚠ or ▽ to step through the list of equipment connected, including thermostat.



To view the Equipment Menus information for the equipment displayed in the scrolling message area, touch **Installer Config** to enter that equipment submenu listing. The scrolling message area will show **"WORKING"** to indicate that the thermostat is retrieving data. Then the first equipment submenu name appears in the scrolling message area.

Touch **Menu** to step out of the equipment submenu parameters back to the equipment submenu. Each touch of **Menu** will step up one menu level back to the Thermostat Options Configuration Menu. Touch the **Run Schedule** to step out of all menus and back to the Home Screen Display.

Auto Mode

In Programmable mode or Non-programmable mode, you can touch the **SYSTEM** key to select **AUTO** to allow the thermostat to automatically change between Heat and Cool. When the **SYSTEM** key is touched to select **Auto** the thermostat will change to Heat or Cool, whichever ran last. If it switches to heat but you want cool, or it changes to cool but you want heat, touch both ⚠ or ▽ keys simultaneously to change to the other mode.

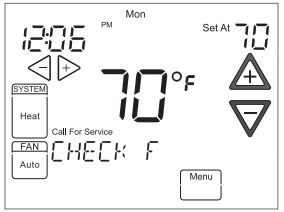
Choose the FAN Setting (Auto or On).

FAN Auto is the most commonly selected setting and runs the fan automatically when the heating or cooling system is on.

FAN On selection runs the fan continuously for increased air circulation or to allow additional air cleaning. When **FAN** is selected **On**, it will run at the speed selected in the Thermostat Options Configuration Menu.

Note: **FAN On Prog** will display to indicate that the fan has been programmed to be on for the complete period. To change the Programmable Fan setting, see page 18 in the Homeowner User Guide.

Check System Status

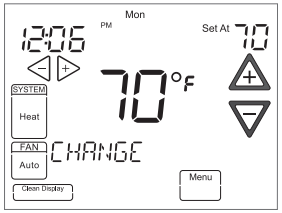


If the Home Screen Display indicates **"Call for Service"** and **"Check (Equipment Name)"** in the scrolling message area, there is a fault in the system. When this fault is displayed, refer to the Advanced Installer Configuration Menu Fault status

If the thermostat indicates **"Call for Service"** with **"CHECK SYSTEM"**, the indoor unit is not detected or has failed to communicate.

Maintenance Reminder Message

A reminder will display in the scrolling message area when it is time for accessory maintenance if selected in the Thermostat Options Configuration Menu. When a reminder appears, it can be cleared by touching the **Clean Display** key. This will also reset the timer to begin a new time period for the reminder.



Air Filter Maintenance - When the system has run for the selected length of time, the scrolling message area will show *"***CHANGE FILTER***"*

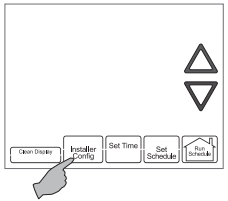
Humidifier Pad Maintenance - Based on the reminder setting, the scrolling message area will show *"***CHANGE HUMIDIFIER PAD***"* to indicate maintenance is required.

UV Lamps Maintenance - Based on the reminder setting, the scrolling message area will show *"***CHANGE UV LAMP"** to indicate maintenance is required.

The Advanced Installer Configuration menu provides access to equipment fault status and equipment operating information and options.

Entering and Navigating the Advanced Installer Configuration Menu/Service Information

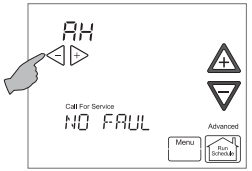
On the Home Screen Display, touch the **Menu** key to display additional key choices.



Touch and hold the **Installer Config** key to approximately 3 seconds to enter the Thermostat Options Configuration Menu.

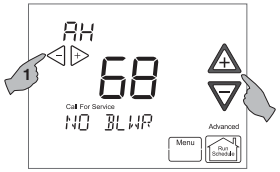
Touch and hold the **Installer Config** key again for approximately 3 seconds to enter the Advanced Installer Configuration Menu.

Fault Status



The display will change to the Fault Screen indicating the equipment connected. **ADVANCED** will appear on the right of the display to indicate the Advanced Installer Configuration Menu.

The equipment connected will show above the ◁ or ▷ keys. The scrolling message area will show **"NO FAULTS"** or will show a description of the fault with an error code in the temperature display area. Touch ◁ or ▷ keys to view the fault status of each piece of equipment connected.



To change the display to the Equipment User Menu, touch ⚠ or ▽.